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10/523,598	10/12/2005	Johannes Rau	LO29-021	1351

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WELLS ST. JOHN P.S.
601 W. FIRST AVENUE, SUITE 1300
SPOKANE, WA 99201

EXAMINER

HASAN, MOHAMMED A

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2873

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02/05/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/523,598	Applicant(s) RAU ET AL.	
	Examiner Mohammed Hasan	Art Unit 2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/2/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23 is/are allowed.
- 6) ☒ Claim(s) 1-4,6,7 and 10-22 is/are rejected.
- 7) ☒ Claim(s) 5,8 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

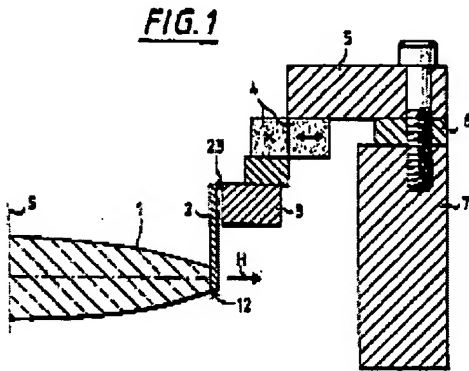
1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4,6,7, and 10-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Holderer et al (6,229,657 B1).

Regarding claim 1, Holderer et al discloses (refer to figures 1-7) an apparatus (i.e., housing 7) for holding an optical assembly having a housing structure (i.e., inherently housing structure) that encloses at least one optical element in an imaging device which has a number of optical assemblies (a lens and mount 5) , wherein the optical assembly is suspended via at least one decoupling element (i.e., actuators 4) in at least one area contacting a supporting structure in a supporting structure, wherein the resultant effect of the at least one decoupling element in the at least one area is impede possible movement in terms of rotation or translation in at least one suitable one of three orthogonal spatial directions , thus resulting in at least one statically defined bearing (column 3, lines 44- 55,column 4, lines 30 – 45).



Regarding claim 2, Holderer et al discloses wherein an optical assembly is suspended via decoupling elements in at least two different areas in supporting structure, wherein the resultant effect of decoupling elements in each area is stiff in terms of rotation or translation in at least one suitable one of three orthogonal spatial directions, thus resulting in at least one statically defined bearing (as shown in figure 6).

Regarding claim 3, Holderer discloses wherein the imaging device is an objective in the form of a catadioptric objective for a projection exposure system for microlithography (column 5, lines 40-55).

Regarding claim 4, Holderer discloses wherein the optical assemblies are lens group (as shown in figure 1).

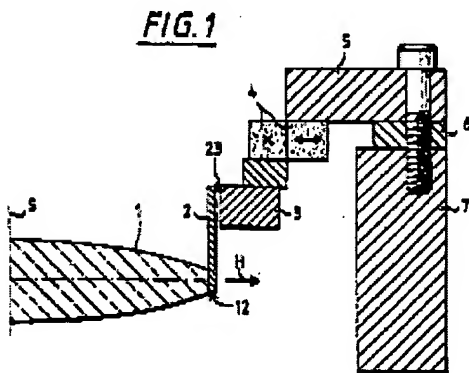
Regarding claim 6, Holderer discloses wherein the tangentially stiff decoupling elements (72,73) and the membrane are connected via a stiff intermediate element (column 4, lines 30-40).

Regarding claim 7, Holderer discloses wherein the decoupling elements are in the form of leaf spring elements (column 4, lines 30-35).

Regarding claim 10, Holderer discloses wherein the decoupling elements are chosen such that thermal expansion between supporting structure and assembly do not lead to mechanical forces (as shown in figure 1).

Regarding claim 11, Holderer discloses a projection exposure system for microlithography (column 5, lines 40-57).

Regarding claim 12, Holderer et al discloses (refer to figures 1-7) an apparatus (i.e., housing 7) for holding an objective which has a number of optical elements, wherein the objective is suspended via at least one decoupling element in at least one area in a supporting structure, wherein the resultant effect of the at least one decoupling element (4) in the at least one area is stiff in terms of rotation or translation in at least one suitable one of three orthogonal spatial directions, thus resulting in at least one statically defined bearing (column 3, lines 44- 55, column 4, lines 30 – 45).



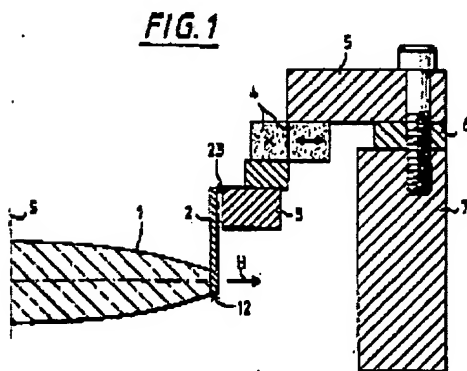
Regarding claim 13, Holderer et al discloses wherein the at least one decoupling element (4) extends between the objective and the supporting structure (as shown in figure 1).

Art Unit: 2873

Regarding claim 14, Holderer et al discloses wherein the objective comprises a housing having an interior to receive the number of optical elements , and wherein the at least one decoupling element (4) extends between the housing and the supporting structure (as shown in figure 1).

Regarding claim 15, Holderer et al discloses wherein the at least one decoupling element comprises a combination of tangentially stiff decoupling elements and a membrane (as shown in figure 1).

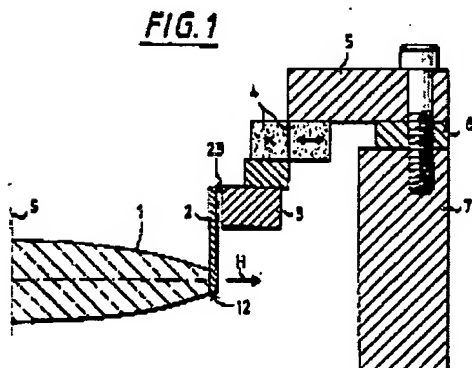
Regarding claim 16. Holderer et al discloses (refer to figures 1-7) a catadioptric objective, wherein the catadioptric objective is suspended via at least one decoupling element (4) in at least one area in a supporting structure, wherein the resultant effect of the at least one decoupling element in the at least one area is stiff in terms of rotation or translation in at least one suitable one of three orthogonal spatial directions, thus resulting in at least one statically defined bearing (column 3, lines 44- 55,column 4, lines 30 – 45). (as shown in figure 1, also catadioptric system inherent in an optical lithograph system is a well known).



Regarding claim 17, Holderer discloses, wherein the at least one decoupling element comprises a large number of tangentially stiff, axially and radially soft elements (as shown in figure 1).

Regarding claim 18. Holderer discloses, wherein a position, an alignment and a stiffness of the at least one decoupling element is chosen such that a first natural form of the oscillation rotates about a point on the catadioptric objective which is neutral with respect to optical sensitivity (as shown in figure 1).

Regarding claim 19, Holderer discloses (refer to figures 1-7) a suspension apparatus for holding an objective having optical elements arranged in an interior of the objective, the suspension apparatus comprising: at least one decoupling element (4) extending between an exterior of the objective and a support structure; and wherein the resultant effect of the at least one decoupling element (4) on the objective is stiff in terms of rotation or translation in at least one suitable one of three orthogonal spatial directions, thus resulting in at least one statically defined bearing (column 3, lines 44-55, column 4, lines 30 – 45).



Regarding claim 20, Holderer et al discloses , wherein the at least one decoupling element comprises a combination of tangentially stiff decoupling elements and a membrane (as shown in figure 1).

Regarding claim 21, Holderer et al discloses , wherein the at least one decoupling element (4) comprises a large number of tangentially stiff, axially and radially soft elements (as shown in figure 1).

Regarding claim 22, Holderer et al discloses, wherein a position, alignment and stiffness of the at least one decoupling element (4) is chosen such that a first natural form of the oscillation rotates about a point on the objective which is neutral with respect to optical sensitivity (as shown in figure 1).

Allowable Subject Matter

2. Claim 23 is allowed.
3. The following is an examiner's statement of reasons for allowance: The prior art taken either singularly or in a combination fails to anticipate or fairly suggest the limitations of the independent claims, in such a manner that rejection under 35 U.S.C. 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claim 23, , which include an apparatus for holding an optical assembly which has a number of optical assemblies and an optical

Art Unit: 2873

assembly is suspended via decoupling elements in at least two different areas and decoupling elements in the one area in which the load is passed to supporting structure is stiff in the spatial direction at least approximately parallel to the force of gravity (g) and the optical assembly is suspended in the other area in supporting structure via a combination of tangentially stiff decoupling elements and a membrane.

4. Claims 5,8,9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to show wherein decoupling elements in the one area in which the load is passed to supporting structure is stiff in the spatial direction at least approximately parallel to the force of gravity , wherein optical assembly is suspended in the other area in supporting structure via a combination of tangentially stiff decoupling elements and a membrane and wherein decoupling elements are stiff in the spatial direction at least approximately parallel to the force of gravity in the one area in which the load is transmitted to supporting structure , wherein the suspension of optical assembly in supporting structure in the other area is provided via a large number of tangentially stiff, axially and radially soft elements and wherein the position of the areas, the alignment of leaf spring elements and the spring stiffness of leaf spring elements are chosen such that a first natural form of the oscillation rotates about a point on assembly which is neutral with respect to optical sensitivity.

Art Unit: 2873

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammed Hasan whose telephone number is (571) 272-2331. The examiner can normally be reached on M-TH, 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky L Mack can be reached on (571) 272- 2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mohammed Hasan/
Primary Examiner, Art Unit 2873
2/2/2008